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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/627,507

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Kenji Yamagami

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EXAMINER

DARNO, PATRICK A

ART UNIT

PAPER NUMBER

2163

DATE MAILED: 06/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/627,507		YAMAGAMI, KENJI	
	<b>Examiner</b>		<b>Art Unit</b>	
	Patrick A. Darno		2163	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 March 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17 and 31-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17 and 31-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>05/07/2006</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. Claims 1-16 and 18-30 have been cancelled. Claim 17 has been amended.

Claims 31-46 are new. Claims 17 and 31-46 are pending in this office action.

### ***Double Patenting***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, **may obtain a patent** therefor, subject to the conditions and requirements of this title.

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 31, 32, 33, 35, 36, 37, 38, 39, and 40 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 2, 4, 5, 6, 7, 8, 9, 10, and 11 of copending Application No. 11/365,096. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

The only difference in claim language between the claims in the two different applications results in the use of “marker journal entry” or “marker entry” in application number 10/627,507 and the use of “target time” in application number 11/365,096. This are exactly the same thing. The “target time” is simply a marker designating a specific journal entry. This is essentially a time-stamp on a journal entry. Requesting “marker entries” and/or “target times” are equivalent. Appropriate correction of is required following the guidelines cited above.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 17 and 31-46 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Number 6,981,114 issued to Weibao Wu et al. (hereinafter “Wu”).

**Claim 17:**

A method for processing data in a storage system coupled to a host computer via a network, the method comprising:

producing snapshots of a data volume (Wu: column 2, lines 51-55), including a first snapshot of at least a portion of the data volume for a first point in time and a second snapshot of the portion of the data volume for a second point in time, wherein the first

point in time is represented by first information that specifies a time when the first snapshot is taken and the second point in time is represented by second information that specifies a time when the second snapshot is taken (Wu: column 5, lines 40-50 and Fig. 2 and column 6, lines 46-48; Note that the cited references disclose creating multiple snapshots. This is clear because the word 'snapshot' is presented in its plural form. Further, Figs. 2, 3, 4, and 5 clearly show multiple snapshots. Surely if there are multiple snapshots there is a first snapshot and a second snapshot. Finally, the reference given in column 6 clearly shows that each snapshot has information associated with it that specifies a time the snapshot is taken. This time information is the 'time-stamped' data. );

detecting write requests directed to the data volume and in response thereto producing journal entries corresponding to the write requests (Wu: column 6, lines 14-25), wherein at least one of the journal entries can be applied to one of the snapshots to recreate data of the portion of the data volume (Wu: column 7, lines 26-29 and column 7, lines 36-41), wherein the journal entries includes write data associated with the write requests and time ordering information that specifies order of the write requests made to the data volume (Wu: column 6, lines 14-25 and Fig. 2 and Fig. 5; The modification logs are the journal entries. This is because the modification logs store individual modifications (writes/deletions) to a file. The modification logs also log the time when the modification took place. The time stamp is assigned to the modification in such a way as to allow when the modification occurred (or time ordering specifying write order).);

detecting a marker request and in response thereto producing a marker journal entry that specifies a third point in time between the first point in time and the second point in time, wherein the journal entries and the marker journal entry are ordered according to a time when one of the write requests is conducted and the third point in

time (Wu: column 9, lines 45-57 and column 7, lines 26-45; The 'marker request' that specifies a third point in time is the request to construct a snapshot at 8:30. This 'marker request specifying a third point in time is between a first point in time, 8 AM, and a second point in time, 9AM. Further note that the first reference cited here gives a practical example of how a user would use Wu's invention. The second reference cited here gives technical details explaining how Wu's invention works. The references cited from the Wu reference both function in the manner and provide the same practical application. For example compare Wu: column 9, lines 45-47 with paragraph [0117], lines 9-14.);

detecting a request to retrieve the marker journal entry that specifies the third point in time between the first point in time and the second point in time and in response thereto accessing the marker journal entry (Wu: column 9, lines 45-57; A marker journal entry equivalent to 8:30 must be retrieved and accessed.); and

detecting a request to perform a recovery operation, the request including the third point in time associated with the marker journal entry (Wu: column 9, lines 45-57), and in response thereto:

selecting one of the first or second snapshot based on the first information, the second information, and the third point in time (Wu: column 9, lines 49-57; Note that either the 8 AM snapshot or the 9 AM snapshot are selected. In selecting either snapshot, first information (8 AM), second information (9 AM), as well as the third point in time (8:15 AM, 8:29 AM, 8:31 AM) must be considered.); and

selecting at least one of the journal entries corresponding to the write operation conducted between the third point in time and one of the first or second point in time associated with the selected snapshot, the time ordering information and the third point in time to recover data of the portion of the data volume at the third point in time by

using the selected snapshot and the selected at least one of the journal entries (Wu: column 9, lines 45-57 and column 7, lines 26-45).

**Claim 31:**

Wu discloses a storage system coupled to a host computer via a network comprising:

a data volume storing write data from the host computer (Wu: column 4, lines 40-43;

The primary volumes are the data volumes.);

a snapshot storing area storing a first snapshot of at least a portion of the data volume for a first point in time, the first point in time represented by first information that specifies a time when the first snapshot is taken (Wu: column 5, lines 40-50 and Fig. 2 and column 6, lines 46-48; The snapshot storing area can be seen in Fig. 2, 240. Note column 5, lines 47-50 which shows that each snapshot is taken at a unique point in time (first point in time). Further, note reference given for column 6 that states each snapshot may be time-stamped. This time stamp is the first information that specifies the time when the snapshot is taken.), the snapshot storing area further storing a second snapshot of the portion of the data volume for a second point in time, the second point in time represented by second information that specifies a time when the second snapshot is taken (Wu: column 5, lines 40-50 and Fig. 2 and column 6, lines 46-48; Note the cited references disclose creating multiple snapshots. While examiner believes this is clear from the cited references because the word snapshot is presented in its plural form, Figs. 2, 3, 4, and 5 clearly show multiple snapshots. Therefore there is not only a first snapshot, but also a second snapshot. Finally, column 6, lines 46-48 shows that each snapshot has an associated time stamp.);

a journal storing area storing journal entries, wherein the journal entries comprises the write data and time ordering information that specifies order of write

operations made to the data volume (Wu: column 6, lines 14-25 and Fig. 2 and Fig. 5; The modification logs are the journal entries. This is because the modification logs store individual modifications (writes/deletions) to a file. The modification logs also log the time when the modification took place. The time stamp is assigned to the modification in such a way as to allow when the modification occurred (or time ordering specifying write order).), and storing marker information that specifies a third point in time between the first point in time and the second point in time (Wu: column 9, lines 45-57; Some kind of 'marker journal entry' must be stored to indicate the files status as a third point in time (8:30AM) between a first point in time (8:00 AM) and a second point in time (9:00 AM).); and

a storage controller (Wu: Fig. 2; The CPU is the physical storage controller executes the logical storage controllers comprised of a modification manager, a volume manager, and a snapshot manager. The CPU, modification manager, volume manager, and snapshot manager combined as a whole result in the storage controller.) configured to perform write operations according to write requests received from the host computer (Wu: column 4, lines 40-43; Since the data volumes can be accessed by the user, read/write requests must be possible.), to manage snapshot operations to store a plurality of snapshots including the first snapshot and the second snapshot (Wu: column 4, lines 51-55 and column 6, lines 38-40 and Fig. 2; Both the volume manager and the snapshot manager help to manage and control the snapshots.), and to manage journal operations to record the journal entries (Wu: column 6, lines 14-25; The journal entries are the modification logs. The modification manager manages operations concerning the modification logs (journal entries).) and record the marker information based on an instruction from the host computer (Wu: column 9, lines 45-57; As stated above, some kind of 'marker journal entry' **must** be stored to indicate the files status as a third point in time (8:30AM) between a first point in time (8:00 AM) and a second



point in time (9:00 AM). This 'marker' information would need to be recorded such that the system would know the state of the file at a particular time. For example, the marker information would describe the status of the file at 8:30 AM (or any other desired time for which a marker was stored). Then the journal entries (or modification logs) would be applied to the snapshot to restore the snapshot to its prior state (i.e., how it existed at a given time.). This is clearly displayed in the example given in column 9, lines 45-57.);

wherein the first information, the second information, and the marker information are associated with the time ordering information to specify time ordering among a time when one of the write operations is conducted, the first point in time, the second point in time, and the third point in time (Wu: column 5, lines 46-50 and column 6, lines 44-48 and column 9, lines 45-57; Note that each snapshot is assigned a time stamp. This is used to track the order to order them chronologically. This strict ordering of the snapshots and journals can be seen at many points in the reference. One example is at column 8, lines 8-11.),

wherein the storage controller releases at least one of the stored journal entries (Wu: column 7, lines 36-45; Note the snapshot manager (which is part of the storage controller) applies modification logs to snapshots. Applying a modification log requires a release of the modification log (journal entry) which is stored in the modification log storing area (journal storing area) shown in Fig. 2, 250.),

wherein, in response to receiving a data recovery request that includes the marker information between the first point in time and the second point in time (Wu: column 9, lines 45-57; The marker information is 8:30 AM. The user selecting this time between the first (8 AM) and second (9 AM) point in time is the user selecting marker information.), the storage

controller determines if at least one of the journal entries is stored in the journal storing area to perform the data recovery request (Wu: column 7, lines 26-29),

wherein, in response to the data recovery request, the storage controller selects one of the first or second snapshot based on the first information, the second information, and the marker information (Wu: column 9, lines 49-57; Note that either the 8 AM snapshot or the 9 AM snapshot are selected. In selecting either snapshot, first information (8 AM), second information (9 AM), as well as the marker information (8:15 AM, 8:29 AM, 8:31 AM) must be considered.), and selects at least one of the journal entries corresponding to the write operation conducted between the third point in time and one of the first or second point in time associated with the selected snapshot (Wu: column 10, lines 44-55; Note that reconstructing a snapshot involves accessing (or selecting) the modifications (journal entries) stored in the modification log. Column 10 lines 49-55 deals with selecting the most appropriate snapshot.), the time ordering information and the marker information to recover data of the portion of the data volume at the third point in time by using the selected snapshot and the selected at least one of the journal entries (Wu: column 7, lines 29-45; This reference discloses in detail how modification logs (or journal entries) are applied (or copied) to a selected snapshot. The methods presented include applying the modification logs (or journal entries) in chronological order.).

**Claim 32:**

Wu discloses all the elements of claim 31, as noted above, and Wu further discloses wherein the time ordering information includes time information and/or sequence number (Wu: column 7, lines 41-45 and column 6, lines 44-48 and Fig. 3; Note that in the first reference that modifications are applied chronologically. In order to do this time ordering information must be tracked. Note the second reference shows that the snapshots may be successively

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numbered (sequence number) or they may be time-stamped. Further figure 3 shows an example of successively numbering (using a sequence number) in order to align the snapshots.).

**Claim 33:**

Wu discloses all the elements of claim 32, as noted above, and Wu further discloses wherein the first and second information include time information and/or sequence number (Wu: column 7, lines 41-45 and column 6, lines 44-48 and Fig. 3; See the rejection of claim 4 for further explanation of these references.).

**Claim 34:**

Wu discloses all the elements of claim 33, as noted above, and Wu further discloses wherein the marker information includes time information and/or sequence number (Wu: column 9, lines 49-57; The marker information is the times 8:15 AM, 8:29 AM, and 8:31 AM. The eventual marker chosen is 8:30 AM. So the marker information includes time information. And the marker information (time information) is order in chronological order (a chronological sequence).).

**Claim 35:**

Wu discloses all the elements of claim 31, as noted above, and Wu further discloses wherein the write data stored in the journal storing area are stored in chronological order (Wu: column 10, lines 61-66; Time-stamping and storing changes (modification logs or journal entries) results in having changes (modification logs or journal entries) stored in chronological order.).

**Claim 36:**

Wu discloses all the elements of claim 31, as noted above, and Wu further discloses wherein the snapshot storing area and/or the journal storing area are

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configured with storage volumes (Wu: Fig. 2 shows the use of storage volumes in the snapshot storing area).

**Claim 37:**

Wu discloses all the elements of claim 31, as noted above, and Wu further discloses wherein at least one of the journal entries are stored in the journal storing area before storing one of the plurality of snapshots in the snapshot storing area (Wu: column 6, lines 16-18; Note specifically “each modification occurs after on snapshot is created and **before** another snapshot is created.” The modifications are stored in modification logs (journal entries) before another snapshot (one of the plurality of stored snapshots) are stored in the snapshot storing area.).

**Claim 38:**

Wu discloses all the elements of claim 31, as noted above, and Wu further discloses wherein the journal operations are started prior to starting the snapshot operations (Wu: column 4, lines 63-65; Note storing modifications to an “original volume”. The modifications are made to an original volume because no snapshot has yet been created.).

**Claim 39:**

Wu discloses all the elements of claim 31, as noted above, and Wu further discloses wherein the selected snapshot is closest in time to the third point in time (Wu: column 8, lines 11-13).

**Claim 40:**

Wu discloses all the elements of claim 31, as noted above, and Wu further discloses wherein the selected snapshot is prior in time to the third point in time (Wu: column 9, lines 49-56; When the 8 AM snapshot is used in the example given, the selected snapshot is prior in time.).

**Claim 41:**

Wu discloses all the elements of claim 31, as noted above, and Wu further discloses wherein when receiving a data recovery request with target time between the first point in time and the second point in time (Wu: column 9, lines 45-57 and column 7, lines 26-45; This is exactly what occurred in the last limitation of claim 17 because the same data recovery process is carried out for a second time as is carried out for a first time. The data recovery process does not change. Therefore the same references apply. See examiner's rejection of claim 17 for any explanation of the cited reference.), the storage controller selects one of the first or second snapshot based on the first information, the second information, and the target time, (Wu: column 9, lines 49-57) and selects at least one of the journal entries corresponding to the write operation conducted between the target time and one of the first or second point in time associated with the selected snapshot based on one of the first or second information associated with the selected snapshot (Wu: column 10, lines 44-55), the time ordering information and the target time to recover data of the portion of the data volume at the target time by using the selected snapshot and the selected at least one of the journal entries (Wu: column 7, lines 29-45).

**Claim 42:**

Claim 42 is rejected under the same reasons set forth in the rejection of claim 31

**Claim 43:**

Claim 43 is rejected under the same reasons set forth in the rejection of claim 41.

**Claim 44:**

Claim 44 is rejected under the same reasons as set forth in the rejection of claim 41.

**Claim 45:**

Claim 45 is rejected under the same reasons set forth in the rejection of claim 35.

**Claim 46:**

Claim 46 is rejected under the same reasons set forth in the rejection of claims 36.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

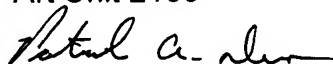
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick A. Darno whose telephone number is (571) 272-0788. The examiner can normally be reached on Monday - Friday, 9:00 am - 5:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patrick A. Darno  
Examiner  
Art Unit 2163



PD



**UYEN LE**  
**PRIMARY EXAMINER**